

NATIONAL SCIENCE FOUNDATION

ARLINGTON, VA 22230

Engineering Directorate Division of Industrial Innovation and Partnerships

Report of the Advisory Committee for Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs

May 16-17, 2013

1.0 INTRODUCTION

The National Science Foundation (NSF) Advisory Committee (AdCom) for the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs met May 16-17 in Baltimore, Maryland, in conjunction with the Phase II Grantees Conference.

Advisory Committee members in attendance included:

Susan Butts
Trish Costello
Arlene Garrison
Karen Kerr
Eugene Krentsel
Tom Knight (Chairman)
Angus Livingstone
William Lockwood-Benet
Richard Paul
Susan Preston
Karthik Ramani
Ann Savoca
David Spencer

Advisory Committee members absent:

E. Jennings Taylor

NSF representatives attending all or part of the meeting included:

Pramod Khargonekar, Assistant Director, Directorate for Engineering (ENG)(via video conference)
Kesh Narayanan, Deputy Assistant Director, ENG

NSF IIP representatives attending all or part of the meeting included:

Grace Wang, Division Director, IIP
 Joseph Hennessey, Senior Advisor, IIP
 Graciela Narcho, Staff Associate, IIP
 Prakash Balan, SBIR/STTR Program Director, IIP
 Steven Konsek, SBIR/STTR Program Director, IIP
 Glenn Larsen, SBIR/STTR Program Director, IIP
 Rajesh Mehta, SBIR/STTR Program Director, IIP
 Ben Schrag, SBIR/STTR Program Director, IIP
 Ruth Shuman, SBIR/STTR Program Director, IIP
 Jesus Soriano, SBIR/STTR Program Director, IIP
 Murali Nair, SBIR/STTR Program Director, IIP
 Lindsay D'Ambrosio, Science Assistant, IIP
 Willis Phan, Program Specialist, IIP

2.0 AGENDA

The agenda for the meeting is included below.

Thursday, May 16 th	
8:30 a.m.	Light Breakfast
9:00 a.m.	Welcome & Introductions
	Review & Approve Fall 2012 Meeting Minutes
9:15 a.m.	IIP Overview and Update on Strategic Goals
10:45 a.m.	Break
11:00 a.m.	Broadening Participation and Assessment
12:30 p.m.	Working Lunch Break-out discussion sessions with Program Directors

	<p>Topic A: AdCom</p> <p>How can the AdCom more actively engage with IIP? What is the best way to utilize the AdCom meetings to get desired input?</p>	<p>Topic B: Phase II Grantee Conference Structure</p> <p>What is the best way to utilize the Phase II Grantees Conference to cultivate commercialization-focused culture and motivate entrepreneurship?</p>	<p>Topic C: Commercialization Assistance</p> <p>What is the most effective format of commercialization assistance? What is the expected outcome?</p>
2:15 p.m.	Report out from Working Groups		
3:30 p.m.	Break		
3:45 p.m.	Committee of Visitor Findings		
4:45 p.m.	Innovation Accelerator		
6:30 pm	Dinner		

Friday, May 17th

8:30 am	Light Breakfast
9:00 a.m.	AdCom Deliberations
10:15 a.m.	Break
11:00 a.m.	AdCom Feedback to NSF
12:00 pm	Adjourn

3.0 COMMENTS and FEEDBACK

The AdCom considered and provided feedback on the following discussion items from the meeting agenda.

Discussion and Approval of Minutes from Prior Meeting

After a brief discussion, the AdCom approved the minutes from the prior meeting held in October 2012.

Organizational Changes & Comments

The AdCom congratulated Joseph Hennessey for receiving the 2013 Tibbetts Award, and thanked him for his continued leadership. They stated that "He is a national asset for the SBIR program, not only within NSF but also across other SBIR government agencies."

The AdCom thanked Kesh Narayanan for his attendance at the meeting, and thanked Pramod Khargonekar for his participation at the meeting via video conference.

The AdCom welcomed new members of IIP, including Barbara Kenney, Gracie Narcho and Shashank Priya.

Industrial Innovation Partnership (IIP) Overview

The AdCom stated its support of the vision Grace Wang presented not only for SBIR/STTR but also for IIP.

They endorsed her vision for IIP and its strategic components, including Education/Diversity, Leverage, Lineage, Operational Excellence, Assessment, and Team.

The AdCom applauded IIP for its leverage of third-party funds. In FY2012, for example, an estimate of \$199 million in matching third party funding was invested in our nation's innovation ecosystem, about \$125 million of which was from the private sector as part of matching funds for IIP programs such as SBIR Phase IIB, I/UCRC, and AIR. This total exceeded the entire IIP budget in FY2012.

The AdCom encouraged IIP to increase this leverage of third-party funds, and to continue to track and report these figures in the future.

The AdCom commended Grace and IIP for their passionate pursuit of increasing the number of high-quality proposals submitted to IIP. They also recognized that the outreach required to attract additional proposals, and the effort required to review these additional proposals, would add to the already very heavy workload among IIP PDs. To enable these changes, the AdCom provided the following four recommendations:

1. Accelerate efforts to document best practices for Phase 0 outreach, Phase I/II proposal review, and award due-diligence.
2. Accelerate efforts to streamline/simplify the processes for Phase I/II proposal review and award due-diligence.
3. Implement these streamlined/simplified best practices across all SBIR PDs as soon as possible. This should reduce the PD workload, improve the quality of the proposal review processes, and enable increased outreach and an increased number of quality SBIR proposals submitted.
4. AdCom requested their next meeting include an update on these efforts.

AdCom endorsed Grace's plans to focus on strategic partnerships with

- non-profits
- professional societies
- trade associations with large networks regional support organizations. To highlight these regional partners, AdCom recommends IIP add an interactive map to its website showing the geographical location of resources/partners.

The AdCom volunteered to act as "ambassadors" for IIP to forge these partnerships, as discussed below.

The following four sections provide the AdCom's feedback to the four questions posed by Grace during her presentation:

1. How to reach out to a larger pool of budding and seasoned entrepreneurs?, a.k.a. "Phase 0 Outreach Activities"

The AdCom supports IIP plans to improve Phase 0 outreach activities. They expect these activities will increase the number of quality Phase 1 proposals submitted, particularly from new PIs. This supports IIP's goals to expand our nation's innovation ecosystem, to broaden participation, and to increase the number of quality proposals submitted to NSF.

The AdCom endorsed the plans IIP presented to improve Phase 0 outreach, such as:

- The updated IIP website
- The updated IIP brochure
- Use of social media such as Twitter and LinkedIn
- Quarterly updates to email subscribers
- Recorded webinars and YouTube videos, especially to explain SBIR to new PIs.
- Utilizing iCorps to increase the number and quality of SBIR Phase 1 proposals.

- Targeting “relayers”, i.e., those people who disseminate information on SBIR to a larger audience and who can amplify our voice
- Utilizing NSF resources such as the Office of Legislative and Public Affairs
- “In-reach” to other NSF divisions and directorates as a way to increase the submission of new IIP proposals, particularly for programs such as STTR, AIR, BIC, and GOALI.

To add to these outreach activities, the AdCom recommended:

- Expanding outreach activities beyond the academic community. The “Talent Pool” includes a large number of entrepreneurs or potential entrepreneurs beyond the academic community who have not yet submitted an SBIR Phase 1 proposal. How can IIP spread the word about SBIR funding, so that they are more aware of the availability of this funding, and more likely to submit a Phase 1 proposal?
- Holding regional activities with partners such as incubators, regional economic development groups, and other local entrepreneurial NGOs and government agencies who share IIP’s vision.
- Talking with organizations who have provided matching funds to SBIR Phase 2 grantees in the past, to ask if they can refer other potential entrepreneurs to submit Phase 1 proposals
- Holding joint webinars with trade associations and professional societies, whose members might be encouraged to submit Phase 1 proposals

The AdCom volunteered to provide input to IIP staff on outreach activities beyond the academic community, and requested that this topic be discussed in a future meeting. The AdCom suggested organizing a retreat focused on this topic.

2. How to benchmark our due diligence process? (a.k.a., improving/expanding best practices in the decision-making process)

This topic will be discussed at a future AdCom meeting.

3. How to further cultivate a commercialization-focused culture within existing grantees, e.g., through the Phase 2 Grantees Conference or through Commercialization Assistance?

Phase 2 Grantees Conference – Feedback from Working Group:

- Focus the overarching objective of the Phase 2 Grantees Conference on improving company success.
- AdCom recommends more peer-to-peer, targeted, non-technical interactions at the meeting, and that these peer-to-peer communication and networking interactions continue all year:
 - At the annual meeting, self-selected groups focused on specific topics could be organized, perhaps at meal times. Interest groups could be formed around women entrepreneurs, international business interests, geographic location of the business (e.g. Houston), regulatory issues, or other areas.
 - Between the annual meetings, each group could build community through networking, webinars, twitter, LinkedIn, and other social media connections year round. This can provide timely support for the PIs. Year round engagement may also increase the focused commercialization conversations at the annual meeting.
 - An IIP staff member could lead each topic area, with a co-lead from a grantee or AdCom. The first experiment (or pilot) could be the women entrepreneurs.
- The conference plays an important role in establishing the communication with program directors throughout the year. The dialogue is the value and sets the stage for a year-long partnership between the PD and PI.
- Consider moving some of the general session topics to webinars, freeing up time for more peer-to-peer and PI-to-PD interaction.
- Amplify the general topics with peer examples from the current/past grantees.
- Consider multi-track programming to add flexibility to the program, allowing grantees to select from parallel topics based on their individual needs.
 - Address the different needs of the PIs. This could be through a multi-track program or through separate poster sessions. First year PI posters may need to focus on technology, and later year PIs may need to present posters focused on the company and the commercialization challenges.
 - PIs need educational components to better understand specific areas of commercialization. One example is clarity of expressing value proposition and the potential business niche for the company.
 - Some PIs could benefit from the iCorps curriculum.

- Elements that are best conveyed in a large group should be included in the general sessions. Other elements are better addressed in small groups or through mentoring.
- Invite and encourage large company attendees for one-on-one meetings with PIs and match making with investors.
- Millennials need smaller bites of programming with more interaction.
- The poster session often focuses too much on technology. It may be better to identify required contents for the poster.
- Consider a video competition with sales pitches, selecting the best ones for presentations on lobby cameras.
- In closing, the AdCom members who attended the Phase II grantees conference felt the ambiance was very good and is really important. The poster sessions were great, but they suggested the stage set up be updated - more open and brighter.

Commercialization Assistance – Feedback from Working Group:

See the discussion below for AdCom recommendations on the Innovation Accelerator, and the discussion of the Subcommittee on Commercialization Assistance.

4. How can AdCom members more actively engage with IIP?

The AdCom volunteered to support IIP between meetings. They have formed three subcommittees, who are willing to more actively engage with IIP. The following three subcommittees are discussed below:

1. Subcommittee on Assessment
2. Subcommittee on Broadening Participation
3. Subcommittee on Commercialization Assistance

In addition, the AdCom volunteered to act as ambassadors on behalf of IIP, particularly to help initiate partnerships to advance IIP's mission. To equip them to become effective ambassadors, they requested that:

- IIP prepare a list of targeted partner organizations with whom IIP wishes to initiate partnerships, and the desired outcomes from the targeted partnership. As discussed below, AdCom volunteered to submit initial ideas for this list prior to their next meeting, and asked that IIP review this as part of the next meeting.
- IIP prepare web pages and other marketing collateral that AdCom members can share with their network

Assessment of Broader Impact and Economic Impact

The AdCom appreciated the presentation by Lindsay D'Ambrosio on the IIP assessment, and endorsed IIP plans for "Assessment at Every Step".

The AdCom requested that IIP continue to track the key strategic metrics presented at this meeting:

1. Dollars of third-party matching funds raised, perhaps as a percentage of total IIP budget
2. Percentage of SBIR Phase 1 awards to new PIs. The AdCom complements IIP on the large and increasing percentage of proposals from PIs that are new to NSF or that have never received a prior Phase 2 award.

In addition to further progress on these quantifiable, aggregate assessment methods, the AdCom recommended that IIP continue to invest in and present the development of key highlights that illustrate the broader impact of its investments.

The AdCom recommended that IIP track not only direct outcomes, like dollars of matching funds, but also to estimate indirect outcomes, such as follow-on funding that was raising in part but not directly due to the SBIR grant.

The AdCom welcomed any additional metrics IIP feels should be reports in future meetings. For example, the number of jobs created by SBIR Phase II/IIB grantees, and the indirect impacts beyond jobs created.

We encourage IIP to pursue partnerships with outside experts who can "mine" our assessment data. We expect such partnerships will provide IIP with data-driven insight on ways to improve IIP portfolio management, and is also likely to provide insight on ways to enhance our nation's innovation ecosystem well beyond IIP's investments. The AdCom volunteered to continue to assist with these efforts. Members of the Subcommittee on Assessment include:

- Susan Butts
- Dick Paul
- Susan Preston
- Karthik Ramani
- Robert "Skip" Rung, Chair
- David Spencer
- E. Jennings Taylor

The AdCom requested that IIP talk with Skip after this meeting on the best way for this subcommittee to support IIP in its efforts to improve assessment.

Broadening Participation

The AdCom expressed its desire to work with IIP to broaden participation of underrepresented groups.

The AdCom agreed with IIP's assessment that progress in this area has been disappointing to date.

The AdCom recommended that IIP focus on increasing the number of Phase I proposals and awards from women and underrepresented groups. We request that IIP collect and present data tracking the number of Phase I proposals submitted from underrepresented groups in each AdCom meeting.

They endorsed IIP's plans to broaden participation using supplements such as RAHSS, RET, SBIR IICC, REU, SBIR IIA, VRS, and the Post-Doc Diversity Fellowship.

The AdCom complimented NSF as being the leading SBIR-granting agency within the federal government with these types of supplement designed to broaden participation.

The AdCom was glad to hear IIP currently asks panelists for referrals to new potential panelists. The AdCom strongly recommended that IIP vet these names as quickly as possible and add qualified panelists to PRIM as a quick method for increasing the pool of potential panelists, including women and underrepresented groups.

In addition, the AdCom recommended IIP create partnerships to increase the number of people who apply for IIP funding from underrepresented groups, either via Phase 1 proposals, or via supplements. As an example of these types of partnerships, the AdCom applauded IIP's collaboration with the Merck Postdoctoral Fellowship Program. They felt this was a very effective model of how partnerships with groups service underrepresented groups can increase the number of people who apply for IIP funding. The AdCom encouraged IIP to pursue additional partnerships with these types of organizations who share our objective of broadening participation of underrepresented groups.

The AdCom volunteered to continue as needed to support these activities and plans to continue their Subcommittee on Broadening Participation. The Subcommittee includes:

- Karen Kerr (Chair)
- Tom Knight
- Eugene Krentsel
- Ann Savoca
- William Lockwood-Benet

The AdCom requested that IIP talk with Karen after this meeting on the best way for this subcommittee to support IIP in its efforts to improve assessment.

Discussion Groups with Program Directors

The AdCom appreciated the opportunity to spend time discussing topics with IIP Program Directors. These conversations were a highlight of the meeting, and confirmed for them the strength, dedication, and tremendous contributions from these critical members of IIP.

The AdCom encouraged similar conversations with Program Directors in future meetings, and welcomed input from the IIP Program Managers on topics they feel would be most valuable to discuss with the AdCom.

Committee of Visitors

The AdCom endorsed the findings and recommendations of the recent Committee of Visitors (CoV).

The AdCom noted the CoV endorsed virtual panels. The AdCom cautioned IIP that they should carefully evaluate the potential impacts (positive and negative) with the use of virtual panels.

The AdCom noted that the CoV recommendations included that IIP document and extend best practices and tools like PRIM for panel selection. The AdCom endorsed these recommendations in particular.

Innovation Accelerator (IA)

The AdCom continued its support for the Innovation Accelerator as a valuable source of commercialization assistance for our Phase II grantees.

They appreciated the progress made by Murali Nair, and the other PDs, in addressing the three main concerns from their prior meeting:

1. Better understanding within IIP on the mechanism used to select Phase II grantees for the Innovation Accelerator program. They endorsed IIP plans to have the PDs recommend their grantees for IA. They also endorsed IIP plans to publish the selection criteria on IA website.
2. A more balanced assessment of the results to date. They appreciated the open, candid feedback from Murali and the PDs on lessons learned from IA. They also welcomed additional information/data collected on the results of the IA program and its 100+ participating grantees to date.

3. A need to engage all Program Directors in IA to ensure this is as effective as possible. They appreciated the comments and suggestions from Murali and the other PDs and recommended IIP continue these conversations and build consensus on how to enhance commercialization assistance to its Phase II grantees.

The AdCom decided to continue its Subcommittee on the Innovation Accelerator, but to expand its membership and its scope to include not only IA, but also other commercialization assistance opportunities. The entire AdCom volunteered to participate in this subcommittee, which will be chaired by Trish Costello. The new name of the Subcommittee will be the "Subcommittee on Commercialization Assistance"

FUTURE MEETING AGENDA

The next AdCom meeting will occur at NSF starting October 17, 2013 at noon and ending October 18 at 2PM.

The AdCom recommended that one meeting each year continue to be held at the same location as a grantee workshop. They welcomed alternating between the Phase I and the Phase II grantees conference.

The AdCom appreciated how IIP shared the meeting agenda prior to this meeting.

To further improve the AdCom's effectiveness, they requested that IIP send succinct presentation materials to all AdCom members in advance of future meetings via email and via Wiki.

AdCom's Proposed Agenda for the Fall meeting:

1. Update on IIP strategic goals, including an update on key strategic metrics
 - a. matching funds
 - b. percentage of SBIR phase 1 awards to new PIs
 - c. plus any other metrics IIP may care to present
2. Update on efforts to document best practices and simplify/streamline processes for Phase 0 outreach, Phase I/II proposal review, and award due-diligence.
3. Discussions with Program Managers on topic(s) preselected to be of particular interest to the Program Managers. One suggestion: the role/impact of travel constraints on PD effectiveness. Please organize the time early in the first day to ensure sufficient time is available.

4. Update on Assessment, and Report from Subcommittee on Assessment. Please present an update on progress and plans. We invite Alexandra Medina-Borja to participate, if possible.
5. Update on Broadening Participation, and Report from Subcommittee on Broadening Participation. Please present updated data tracking the number of Phase I proposals submitted from women and underrepresented groups, and plans to increase the number of quality proposals from women and underrepresented groups.
6. Update on Commercialization Assistance, and Report from Subcommittee on Commercialization Assistance, including Innovation Accelerator.
7. Discussion of list of targeted partner organizations with whom IIP wishes to initiate partnerships. AdCom volunteers to submit initial ideas for this list prior to our next meeting, and asks that we review this as part of our next meeting, as discussed below.
8. Deliberations and Report Out

AdCom's ACTION ITEMS PRIOR TO NEXT MEETING:

1. To organize our AdCom's efforts as "IIP Ambassadors":
 - a. Each AdCom member will email a list of potential partner organizations to Tom Knight.
 - b. Tom Knight will compile a master list and forward it to IIP.
 - c. IIP staff will then select which organizations on this list they would like assistance from AdCom members as IIP Ambassadors, and will present this list for discussion at the next AdCom meeting.
2. Skip Rung will chair the Subcommittee on Assessment, and ask for input from Gracie Narcho within IIP on ways to best engage prior to our next meeting
3. Karen Kerr will chair the Subcommittee on Broadening Participation, and will ask for input from Gracie Narcho within IIP on ways to best engage prior to our next meeting
4. Trish Costello will chair the Subcommittee on Commercialization Assistance, and will ask for input from Joe Hennessey within IIP on ways to best engage prior to our next meeting. Specifics regarding IA will continue to be discussed with Murali Nair.